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### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Carmen Tawil et al.

Patent No: Issued:

6,892,050 B1 May 10, 2005

Serial No:

09/714,011

Filed:

November 16, 2000

FOR:

APPARATUS AND METHOD FOR

TRANSMITTING TERRESTRIAL SIGNALS ON A COMMON FREQUENCY WITH

SATELLITE TRANSMISSION

Attention: Certificate of Corrections Branch

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Group Art Unit: 2685

Examiner: Quochien B. Voung

### REQUEST FOR CERTIFICATE OF CORRECTION **PURSUANT TO 37 C.F.R. §1.322**

Transmitted herewith is a Certificate of Correction for U.S. Patent No. 6,892,050 B1 issued May 10, 2005. Upon reviewing the patent, the Patentee noted a large number of typographical errors made by the Patent and Trademark Office. In particular with regard to the claims, the patent issued without a large number of the allowed claims. That is, claims 1-37 were allowed in the case, but only claims 1-23 appear in the issued patent. It appears the error arose because the claim amendments filed June 4, 2001 were not properly entered in the case, even though those claims were allowed. The errors should be corrected as follows:

At column 5, line 62:

Change "Sig nals" to --Signals--.

At column 6, line 18 through column 8, line 53 replace the claims with the following set of claims:

- 1. An apparatus for simultaneously transmitting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a user location for reception within a satellite directional reception range about the user location, the apparatus comprising:
  - (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter

transmits to the user location along a route which is outside of the satellite directional reception range.

- 2. The apparatus of Claim 1 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and wherein:
  - (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 3. The apparatus of Claim 2 further comprising:
  - (a) a plurality of terrestrial transmitters, each transmitting signals at the first frequency from a different terrestrial transmission location.
- 4. The apparatus of Claim 1 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.
- 5. The apparatus of Claim 1 wherein the first frequency is above 12.2 gigahertz.
- 6. The apparatus of Claim 1 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 7. A method for simultaneously providing terrestrial signals on a common frequency with satellite signals transmitted from a satellite, where the satellite is transmitting at a first frequency along a satellite transmission axis extending from the satellite to a terrestrial user location, the method comprising the steps of:
  - (a) transmitting terrestrial signals at the first frequency from a terrestrial transmitter, the terrestrial transmitter being located with respect to the user location so as to transmit to the user location along a transmission route which is outside of a satellite directional reception range about the

user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis.

- 8. The method of Claim 7 further comprising the step of:
  - (a) transmitting terrestrial signals at the first frequency from a plurality of terrestrial transmitters at different terrestrial locations.
- 9. The method of Claim 7 wherein the first frequency is in the range of 12.2 gigahertz to 12.7 gigahertz.
- 10. The method of Claim 7 wherein the first frequency is above 12.2 gigahertz.
- 11. The method of Claim 7 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 12. An apparatus for facilitating the use of terrestrial transmitted signals which are transmitted on a common frequency simultaneously with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a terrestrial user location along a satellite transmission axis, the apparatus comprising:
  - (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency to the user location, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter transmits to the user location along a route which is outside of a satellite directional reception range about the user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis; and
  - (b) a terrestrial receiving antenna at the user location for receiving signals at the first frequency only within a limited terrestrial directional reception range about the terrestrial antenna, the terrestrial antenna being aligned so that the terrestrial directional reception range encompasses the route from the terrestrial transmitter location to the user location, and being aligned so that the satellite transmission axis is outside of the terrestrial directional reception range.
- 13. The apparatus of Claim 12 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than an angle equal to one half of the satellite directional reception range and the

satellites together transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and wherein:

- (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 14. The apparatus of Claim 13 further comprising:
  - (a) a plurality of terrestrial transmitters each transmitting from a different terrestrial transmission location.
- 15. The apparatus of Claim 12 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.
- 16. The apparatus of Claim 12 wherein the first frequency is above 12.2 gigahertz.
- 17. The apparatus of Claim 12 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 18. An apparatus for simultaneously transmitting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a user location for reception within a satellite directional reception range about the user location, the apparatus comprising:
  - (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency from a fixed terrestrial location which forms a fixed geometry with the user location and the satellite, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter transmits to the user location along a route which is outside of the satellite directional reception range about the user location.
- 19. The apparatus of Claim 18 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together

transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and wherein:

- (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 20. The apparatus of Claim 18 further comprising:
  - (a) a plurality of terrestrial transmitters, each transmitting from a different fixed terrestrial transmission location which forms a fixed geometry with the satellite and the user location.
- 21. The apparatus of Claim 18 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.
- 22. The apparatus of Claim 18 wherein the first frequency is above 12.2 gigahertz.
- 23. The apparatus of Claim 18 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 24. An apparatus for simultaneously broadcasting terrestrial signals to a first terrestrial broadcast service area on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a number of user locations within the first terrestrial broadcast service area for reception within a satellite directional reception range about each respective user location, the apparatus comprising:
  - (a) a terrestrial transmitter for broadcasting terrestrial signals at the first frequency to the first terrestrial broadcast service area, the terrestrial transmitter being located with respect to each respective user location in the first terrestrial broadcast service area such that the terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- 25. The apparatus of Claim 24 wherein the satellite signals are transmitted in a digital format.

- 26. The apparatus of Claim 24 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.
- 27. The apparatus of Claim 24 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to each user location in the first terrestrial broadcast service area within a combined satellite signal transmission range about each respective user location, and wherein:
  - (a) the terrestrial transmitter broadcasts only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range at each respective user location.
- 28. The apparatus of Claim 27 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising:
  - (a) a plurality of additional terrestrial transmitters, each broadcasting signals at the first frequency from a different terrestrial broadcasting location to a portion of the combined terrestrial broadcast service area, each additional terrestrial transmitter being located with respect to each respective user location in the respective portion of the combined terrestrial broadcast service area to which the respective additional transmitter broadcasts such that the respective additional terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- A method for simultaneously broadcasting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, where the satellite is transmitting at a first frequency along a satellite transmission axis extending from the satellite to a number of terrestrial user locations within a first terrestrial broadcast service area, the method comprising the steps of:

- broadcasting terrestrial signals at the first frequency from a terrestrial transmitter to the first terrestrial broadcast service area, the terrestrial transmitter being located with respect to each respective user location so as to broadcast to the respective user location along a transmission route which is outside of a satellite directional reception range about the respective user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis.
- 30. The method of Claim 29 wherein the satellite signals are transmitted in a digital format.
- The method of Claim 29 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.
- 32. The method of Claim 29 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising the step of:
  - broadcasting terrestrial signals at the first frequency to the combined terrestrial broadcast service area from a plurality of additional terrestrial transmitters at different terrestrial locations, each additional terrestrial transmitter broadcasting to a respective portion of the combined terrestrial broadcast service area and being located with respect to each respective user location in that respective portion of the combined terrestrial broadcast service area so as to broadcast to the respective user location along a transmission route which is outside of the satellite directional reception range about the respective user location.
- An apparatus for simultaneously broadcasting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a number of user locations in a first terrestrial broadcast service area for reception within a satellite directional reception range about each respective user location, the apparatus comprising:

- (a) a terrestrial transmitter for broadcasting terrestrial signals to the first terrestrial broadcast service area at the first frequency from a fixed terrestrial location which forms a fixed geometry with each respective user location and the satellite, the terrestrial transmitter being located with respect to each respective user location such that the terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- 34. The apparatus of Claim 33 wherein the satellite signals are transmitted in a digital format.
- 35. The apparatus of Claim 33 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.
- 36. The apparatus of Claim 33 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to each respective user location within a combined satellite signal transmission range about the respective user location, and wherein:
  - (a) the terrestrial transmitter broadcasts only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range at the respective user location.
- 37. The apparatus of Claim 36 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising:
  - (a) a plurality of additional terrestrial transmitters, each broadcasting to a portion of the combined terrestrial broadcast service area from a different fixed terrestrial transmission location which forms a fixed geometry with the satellite and each respective user location in the respective portion of the combined terrestrial broadcast service area, each additional

terrestrial transmitter being located with respect to each respective user location to which the respective additional terrestrial transmitter broadcasts such that the respective additional terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.

Since the errors for which a Certificate of Correction is sought were a result of Patent and Trademark Office mistakes, no fee is due (35 U.S.C. §254).

Respectfully submitted,

The Culbertson Group, P.C.

Russell D. Culbertson, Reg. No. 32,124 Russell C. Scott, Reg. No. 43,103 Trevor Lind, Reg. No. 54,785 1114 Lost Creek Boulevard, Suite 420 Austin, Texas 78746

512-327-8932

ATTORNEYS FOR PATENTEE

### CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Certificate of Correction Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Date of Deposit: /

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### UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page \_\_1\_ of \_\_8\_

PATENT NO.

: 6,892,050 B1

APPLICATION NO.: 09/714,011

ISSUE DATE

: May 10, 2005

INVENTOR(S)

Carmen Tawil and Saleem Tawil

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

At column 5, line 62 change "Sig nals" to "Signals"

At column 6, line 18 through column 8, line 53 replace the claims with the following set of claims:

- 1. An apparatus for simultaneously transmitting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a user location for reception within a satellite directional reception range about the user location, the apparatus comprising: (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter transmits to the user location along a route which is outside of the satellite directional reception range.
- 2. The apparatus of claim 1 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and
- (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 3. The apparatus of claim 2 further comprising:
- (a) a plurality of terrestrial transmitters, each transmitting signals at the first frequency from a different terrestrial transmission location.

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Russell D. Culbertson The Culbertson Group, P.C.

1114 Lost Creek Boulevard, Suite 420, Austin, Texas 78746

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Page 2 of 8

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: May 10, 2005

INVENTOR(S)

Carmen Tawil and Saleem Tawil

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

- 4. The apparatus of claim 1 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.
- 5. The apparatus of claim 1 wherein the first frequency is above 12.2 gigahertz.
- 6. The apparatus of claim 1 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 7. A method for simultaneously providing terrestrial signals on a common frequency with satellite signals transmitted from a satellite, where the satellite is transmitting at a first frequency along a satellite transmission axis extending from the satellite to a terrestrial user location, the method comprising the steps of:
- (a) transmitting terrestrial signals at the first frequency from a terrestrial transmitter, the terrestrial transmitter being located with respect to the user location so as to transmit to the user location along a transmission route which is outside of a satellite directional reception range about the user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis.
- 8. The method of claim 7 further comprising the step of:
- (a) transmitting terrestrial signals at the first frequency from a plurality of terrestrial transmitters at different terrestrial locations.
- 9. The method of claim 7 wherein the first frequency is in the range of 12.2 gigahertz to 12.7 gigahertz.
- 10. The method of claim 7 wherein the first frequency is above 12.2 gigahertz.
- 11. The method of claim 7 wherein the satellite directional reception range is approximately eighteen (18) degrees.

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It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

- 12. An apparatus for facilitating the use of terrestrial transmitted signals which are transmitted on a common frequency simultaneously with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a terrestrial user location along a satellite transmission axis, the apparatus comprising:
- (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency to the user location, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter transmits to the user location along a route which is outside of a satellite directional reception range about the user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis; and
- (b) a terrestrial receiving antenna at the user location for receiving signals at the first frequency only within a limited terrestrial directional reception range about the terrestrial antenna, the terrestrial antenna being aligned so that the terrestrial directional reception range encompasses the route from the terrestrial transmitter location to the user location, and being aligned so that the satellite transmission axis is outside of the terrestrial directional reception range.
- 13. The apparatus of claim 12 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than an angle equal to one half of the satellite directional reception range and the satellites together transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and wherein:
- (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 14. The apparatus of claim 13 further comprising:
- (a) a plurality of terrestrial transmitters each transmitting from a different terrestrial transmission location.
- 15. The apparatus of claim 12 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.

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INVENTOR(S)

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- 16. The apparatus of Claim 12 wherein the first frequency is above 12.2 gigahertz.
- 17. The apparatus of Claim 12 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 18. An apparatus for simultaneously transmitting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a user location for reception within a satellite directional reception range about the user location, the apparatus comprising:
- (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency from a fixed terrestrial location which forms a fixed geometry with the user location and the satellite, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter transmits to the user location along a route which is outside of the satellite directional reception range about the user location.
- 19. The apparatus of Claim 18 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and
- (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 20. The apparatus of Claim 18 further comprising:
- (a) a plurality of terrestrial transmitters, each transmitting from a different fixed terrestrial transmission location which forms a fixed geometry with the satellite and the user location.
- 21. The apparatus of Claim 18 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.
- 22. The apparatus of Claim 18 wherein the first frequency is above 12.2 gigahertz.

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Russell D. Culbertson

The Culbertson Group, P.C.

1114 Lost Creek Boulevard, Suite 420, Austin, Texas 78746

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INVENTOR(S)

Carmen Tawil and Saleem Tawil

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

- 23. The apparatus of Claim 18 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 24. An apparatus for simultaneously broadcasting terrestrial signals to a first terrestrial broadcast service area on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a number of user locations within the first terrestrial broadcast service area for reception within a satellite directional reception range about each respective user location, the apparatus comprising:
- (a) a terrestrial transmitter for broadcasting terrestrial signals at the first frequency to the first terrestrial broadcast service area, the terrestrial transmitter being located with respect to each respective user location in the first terrestrial broadcast service area such that the terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- 25. The apparatus of Claim 24 wherein the satellite signals are transmitted in a digital format.
- 26. The apparatus of Claim 24 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.
- 27. The apparatus of Claim 24 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to each user location in the first terrestrial broadcast service area within a combined satellite signal transmission range about each respective user location, and wherein:
- (a) the terrestrial transmitter broadcasts only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range at each respective user location.

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Russell D. Culbertson

The Culbertson Group, P.C.

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INVENTOR(S)

Carmen Tawil and Saleem Tawil

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

- 28. The apparatus of Claim 27 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising:
- (a) a plurality of additional terrestrial transmitters, each broadcasting signals at the first frequency from a different terrestrial broadcasting location to a portion of the combined terrestrial broadcast service area, each additional terrestrial transmitter being located with respect to each respective user location in the respective portion of the combined terrestrial broadcast service area to which the respective additional transmitter broadcasts such that the respective additional terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- 29. A method for simultaneously broadcasting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, where the satellite is transmitting at a first frequency along a satellite transmission axis extending from the satellite to a number of terrestrial user locations within a first terrestrial broadcast service area, the method comprising the steps of:
- (a) broadcasting terrestrial signals at the first frequency from a terrestrial transmitter to the first terrestrial broadcast service area, the terrestrial transmitter being located with respect to each respective user location so as to broadcast to the respective user location along a transmission route which is outside of a satellite directional reception range about the respective user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis.
- 30. The method of Claim 29 wherein the satellite signals are transmitted in a digital format.
- 31. The method of Claim 29 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.

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- 32. The method of Claim 29 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising the step of:
- (a) broadcasting terrestrial signals at the first frequency to the combined terrestrial broadcast service area from a plurality of additional terrestrial transmitters at different terrestrial locations, each additional terrestrial transmitter broadcasting to a respective portion of the combined terrestrial broadcast service area and being located with respect to each respective user location in that respective portion of the combined terrestrial broadcast service area so as to broadcast to the respective user location along a transmission route which is outside of the satellite directional reception range about the respective user location.
- 33. An apparatus for simultaneously broadcasting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a number of user locations in a first terrestrial broadcast service area for reception within a satellite directional reception range about each respective user location, the apparatus comprising:
- (a) a terrestrial transmitter for broadcasting terrestrial signals to the first terrestrial broadcast service area at the first frequency from a fixed terrestrial location which forms a fixed geometry with each respective user location and the satellite, the terrestrial transmitter being located with respect to each respective user location such that the terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- 34. The apparatus of Claim 33 wherein the satellite signals are transmitted in a digital format.
- 35. The apparatus of Claim 33 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.

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It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

- 36. The apparatus of Claim 33 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to each respective user location within a combined satellite signal transmission range about the respective user location, and wherein:
- (a) the terrestrial transmitter broadcasts only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range at the respective user location.
- 37. The apparatus of Claim 36 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising:
- (a) a plurality of additional terrestrial transmitters, each broadcasting to a portion of the combined terrestrial broadcast service area from a different fixed terrestrial transmission location which forms a fixed geometry with the satellite and each respective user location in the respective portion of the combined terrestrial broadcast service area, each additional terrestrial transmitter being located with respect to each respective user location to which the respective additional terrestrial transmitter broadcasts such that the respective additional terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.

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Russell D. Culbertson

The Culbertson Group, P.C.

1114 Lost Creek Boulevard, Suite 420, Austin, Texas 78746

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Group Art Unit: 2685

Examiner: Quochien B. Voung

In Re Application of: Carmen Tawil et al.

Patent No: Issued:

6,892,050 B1 May 10, 2005

Serial No:

09/714.011

Filed:

November 16, 2000

FOR:

APPARATUS AND METHOD FOR

TRANSMITTING TERRESTRIAL SIGNALS ON A COMMON FREQUENCY WITH SATELLITE TRANSMISSION

Attention: Certificate of Corrections Branch

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

# REQUEST FOR CERTIFICATE OF CORRECTION PURSUANT TO 37 C.F.R. §1.322

Transmitted herewith is a Certificate of Correction for U.S. Patent No. 6,892,050 B1 issued May 10, 2005. Upon reviewing the patent, the Patentee noted a large number of typographical errors made by the Patent and Trademark Office. In particular with regard to the claims, the patent issued without a large number of the allowed claims. That is, claims 1-37 were allowed in the case, but only claims 1-23 appear in the issued patent. It appears the error arose because the claim amendments filed June 4, 2001 were not properly entered in the case, even though those claims were allowed. The errors should be corrected as follows:

At column 5, line 62:

Change "Sig nals" to -- Signals ---.

At column 6, line 18 through column 8, line 53 replace the claims with the following set of claims:

- 1. An apparatus for simultaneously transmitting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a user location for reception within a satellite directional reception range about the user location, the apparatus comprising:
  - (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter

transmits to the user location along a route which is outside of the satellite directional reception range.

- 2. The apparatus of Claim 1 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and wherein:
  - (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 3. The apparatus of Claim 2 further comprising:
  - (a) a plurality of terrestrial transmitters, each transmitting signals at the first frequency from a different terrestrial transmission location.
- 4. The apparatus of Claim 1 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.
- 5. The apparatus of Claim 1 wherein the first frequency is above 12.2 gigahertz.
- 6. The apparatus of Claim 1 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 7. A method for simultaneously providing terrestrial signals on a common frequency with satellite signals transmitted from a satellite, where the satellite is transmitting at a first frequency along a satellite transmission axis extending from the satellite to a terrestrial user location, the method comprising the steps of:
  - (a) transmitting terrestrial signals at the first frequency from a terrestrial transmitter, the terrestrial transmitter being located with respect to the user location so as to transmit to the user location along a transmission route which is outside of a satellite directional reception range about the

user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis.

- 8. The method of Claim 7 further comprising the step of:
  - transmitting terrestrial signals at the first frequency from a plurality of terrestrial transmitters at different terrestrial locations.
- 9. The method of Claim 7 wherein the first frequency is in the range of 12.2 gigahertz to 12.7 gigahertz.
- 10. The method of Claim 7 wherein the first frequency is above 12.2 gigahertz.
- 11. The method of Claim 7 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 12. An apparatus for facilitating the use of terrestrial transmitted signals which are transmitted on a common frequency simultaneously with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a terrestrial user location along a satellite transmission axis, the apparatus comprising:
  - (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency to the user location, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter transmits to the user location along a route which is outside of a satellite directional reception range about the user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis; and
  - (b) a terrestrial receiving antenna at the user location for receiving signals at the first frequency only within a limited terrestrial directional reception range about the terrestrial antenna, the terrestrial antenna being aligned so that the terrestrial directional reception range encompasses the route from the terrestrial transmitter location to the user location, and being aligned so that the satellite transmission axis is outside of the terrestrial directional reception range.
- 13. The apparatus of Claim 12 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than an angle equal to one half of the satellite directional reception range and the

satellites together transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and wherein:

- (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 14. The apparatus of Claim 13 further comprising:
  - (a) a plurality of terrestrial transmitters each transmitting from a different terrestrial transmission location.
- 15. The apparatus of Claim 12 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.
- 16. The apparatus of Claim 12 wherein the first frequency is above 12.2 gigahertz.
- 17. The apparatus of Claim 12 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 18. An apparatus for simultaneously transmitting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a user location for reception within a satellite directional reception range about the user location, the apparatus comprising:
  - (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency from a fixed terrestrial location which forms a fixed geometry with the user location and the satellite, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter transmits to the user location along a route which is outside of the satellite directional reception range about the user location.
- 19. The apparatus of Claim 18 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together

transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and wherein:

- (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 20. The apparatus of Claim 18 further comprising:
  - (a) a plurality of terrestrial transmitters, each transmitting from a different fixed terrestrial transmission location which forms a fixed geometry with the satellite and the user location.
- 21. The apparatus of Claim 18 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.
- 22. The apparatus of Claim 18 wherein the first frequency is above 12.2 gigahertz.
- The apparatus of Claim 18 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 24. An apparatus for simultaneously broadcasting terrestrial signals to a first terrestrial broadcast service area on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a number of user locations within the first terrestrial broadcast service area for reception within a satellite directional reception range about each respective user location, the apparatus comprising:
  - (a) a terrestrial transmitter for broadcasting terrestrial signals at the first frequency to the first terrestrial broadcast service area, the terrestrial transmitter being located with respect to each respective user location in the first terrestrial broadcast service area such that the terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- 25. The apparatus of Claim 24 wherein the satellite signals are transmitted in a digital format.

- 26. The apparatus of Claim 24 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.
- 27. The apparatus of Claim 24 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to each user location in the first terrestrial broadcast service area within a combined satellite signal transmission range about each respective user location, and wherein:
  - (a) the terrestrial transmitter broadcasts only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range at each respective user location.
- 28. The apparatus of Claim 27 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising:
  - (a) a plurality of additional terrestrial transmitters, each broadcasting signals at the first frequency from a different terrestrial broadcasting location to a portion of the combined terrestrial broadcast service area, each additional terrestrial transmitter being located with respect to each respective user location in the respective portion of the combined terrestrial broadcast service area to which the respective additional transmitter broadcasts such that the respective additional terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- A method for simultaneously broadcasting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, where the satellite is transmitting at a first frequency along a satellite transmission axis extending from the satellite to a number of terrestrial user locations within a first terrestrial broadcast service area, the method comprising the steps of:

- (a) broadcasting terrestrial signals at the first frequency from a terrestrial transmitter to the first terrestrial broadcast service area, the terrestrial transmitter being located with respect to each respective user location so as to broadcast to the respective user location along a transmission route which is outside of a satellite directional reception range about the respective user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis.
- 30. The method of Claim 29 wherein the satellite signals are transmitted in a digital format.
- 31. The method of Claim 29 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.
- 32. The method of Claim 29 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising the step of:
  - broadcasting terrestrial signals at the first frequency to the combined terrestrial broadcast service area from a plurality of additional terrestrial transmitters at different terrestrial locations, each additional terrestrial transmitter broadcasting to a respective portion of the combined terrestrial broadcast service area and being located with respect to each respective user location in that respective portion of the combined terrestrial broadcast service area so as to broadcast to the respective user location along a transmission route which is outside of the satellite directional reception range about the respective user location.
- 33. An apparatus for simultaneously broadcasting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a number of user locations in a first terrestrial broadcast service area for reception within a satellite directional reception range about each respective user location, the apparatus comprising:

- (a) a terrestrial transmitter for broadcasting terrestrial signals to the first terrestrial broadcast service area at the first frequency from a fixed terrestrial location which forms a fixed geometry with each respective user location and the satellite, the terrestrial transmitter being located with respect to each respective user location such that the terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- 34. The apparatus of Claim 33 wherein the satellite signals are transmitted in a digital format.
- 35. The apparatus of Claim 33 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.
- 36. The apparatus of Claim 33 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to each respective user location within a combined satellite signal transmission range about the respective user location, and wherein:
  - (a) the terrestrial transmitter broadcasts only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range at the respective user location.
- 37. The apparatus of Claim 36 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising:
  - (a) a plurality of additional terrestrial transmitters, each broadcasting to a portion of the combined terrestrial broadcast service area from a different fixed terrestrial transmission location which forms a fixed geometry with the satellite and each respective user location in the respective portion of the combined terrestrial broadcast service area, each additional

terrestrial transmitter being located with respect to each respective user location to which the respective additional terrestrial transmitter broadcasts such that the respective additional terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.

Since the errors for which a Certificate of Correction is sought were a result of Patent and

Trademark Office mistakes, no fee is due (35 U.S.C. §254).

Respectfully submitted,

The Culbertson Group, P.C.

Dated: 1) uh 2005

Russell D. Culbertson, Reg. No. 32,124 Russell C. Scott, Reg. No. 43,103 Trevor Lind, Reg. No. 54,785 1114 Lost Creek Roulevard, Suite 420

Austin, Texas 78746

512-327-8932

ATTORNEYS FOR PATENTEE

### **CERTIFICATE OF MAILING**

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### UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 1 of 8

PATENT NO.

: 6,892,050 B1

APPLICATION NO.: 09/714,011

ISSUE DATE

: May 10, 2005

INVENTOR(S)

Carmen Tawil and Saleem Tawil

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

At column 5, line 62 change "Sig nals" to "Signals"

At column 6, line 18 through column 8, line 53 replace the claims with the following set of claims:

- 1. An apparatus for simultaneously transmitting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a user location for reception within a satellite directional reception range about the user location, the apparatus comprising: (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter transmits to the user location along a route which is outside of the satellite directional reception range.
- 2. The apparatus of claim 1 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and
- (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 3. The apparatus of claim 2 further comprising:
- (a) a plurality of terrestrial transmitters, each transmitting signals at the first frequency from a different terrestrial transmission location.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Russell D. Culbertson

The Culbertson Group, P.C.

1114 Lost Creek Boulevard, Suite 420, Austin, Texas 78746

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INVENTOR(S)

Carmen Tawil and Saleem Tawil

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

- 4. The apparatus of claim 1 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.
- 5. The apparatus of claim 1 wherein the first frequency is above 12.2 gigahertz.
- 6. The apparatus of claim 1 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 7. A method for simultaneously providing terrestrial signals on a common frequency with satellite signals transmitted from a satellite, where the satellite is transmitting at a first frequency along a satellite transmission axis extending from the satellite to a terrestrial user location, the method comprising the steps of:
- (a) transmitting terrestrial signals at the first frequency from a terrestrial transmitter, the terrestrial transmitter being located with respect to the user location so as to transmit to the user location along a transmission route which is outside of a satellite directional reception range about the user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis.
- 8. The method of claim 7 further comprising the step of:
- (a) transmitting terrestrial signals at the first frequency from a plurality of terrestrial transmitters at different terrestrial locations.
- 9. The method of claim 7 wherein the first frequency is in the range of 12.2 gigahertz to 12.7 gigahertz.
- 10. The method of claim 7 wherein the first frequency is above 12.2 gigahertz.
- 11. The method of claim 7 wherein the satellite directional reception range is approximately eighteen (18) degrees.

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Russell D. Culbertson

The Culbertson Group, P.C.

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INVENTOR(S)

Carmen Tawil and Saleem Tawil

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

- 12. An apparatus for facilitating the use of terrestrial transmitted signals which are transmitted on a common frequency simultaneously with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a terrestrial user location along a satellite transmission axis, the apparatus comprising:
- (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency to the user location, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter transmits to the user location along a route which is outside of a satellite directional reception range about the user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis; and
- (b) a terrestrial receiving antenna at the user location for receiving signals at the first frequency only within a limited terrestrial directional reception range about the terrestrial antenna, the terrestrial antenna being aligned so that the terrestrial directional reception range encompasses the route from the terrestrial transmitter location to the user location, and being aligned so that the satellite transmission axis is outside of the terrestrial directional reception range.
- 13. The apparatus of claim 12 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than an angle equal to one half of the satellite directional reception range and the satellites together transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and wherein:
- (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 14. The apparatus of claim 13 further comprising:
- (a) a plurality of terrestrial transmitters each transmitting from a different terrestrial transmission location.
- 15. The apparatus of claim 12 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.

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Russell D. Culbertson

The Culbertson Group, P.C.

1114 Lost Creek Boulevard, Suite 420, Austin, Texas 78746

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INVENTOR(S)

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- 16. The apparatus of Claim 12 wherein the first frequency is above 12.2 gigahertz.
- 17. The apparatus of Claim 12 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 18. An apparatus for simultaneously transmitting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a user location for reception within a satellite directional reception range about the user location, the apparatus comprising:
- (a) a terrestrial transmitter for transmitting terrestrial signals at the first frequency from a fixed terrestrial location which forms a fixed geometry with the user location and the satellite, the terrestrial transmitter being located with respect to the user location such that the terrestrial transmitter transmits to the user location along a route which is outside of the satellite directional reception range about the user location.
- 19. The apparatus of Claim 18 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to the user location within a combined satellite signal transmission range about the user location, and
- (a) the terrestrial transmitter transmits only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range.
- 20. The apparatus of Claim 18 further comprising:
- (a) a plurality of terrestrial transmitters, each transmitting from a different fixed terrestrial transmission location which forms a fixed geometry with the satellite and the user location.
- 21. The apparatus of Claim 18 wherein the first frequency is in a range of 12.2 gigahertz to 12.7 gigahertz.
- 22. The apparatus of Claim 18 wherein the first frequency is above 12.2 gigahertz.

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The Culbertson Group, P.C.

1114 Lost Creek Boulevard, Suite 420, Austin, Texas 78746

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INVENTOR(S)

Carmen Tawil and Saleem Tawil

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- 23. The apparatus of Claim 18 wherein the satellite directional reception range is approximately eighteen (18) degrees.
- 24. An apparatus for simultaneously broadcasting terrestrial signals to a first terrestrial broadcast service area on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a number of user locations within the first terrestrial broadcast service area for reception within a satellite directional reception range about each respective user location, the apparatus comprising:
- (a) a terrestrial transmitter for broadcasting terrestrial signals at the first frequency to the first terrestrial broadcast service area, the terrestrial transmitter being located with respect to each respective user location in the first terrestrial broadcast service area such that the terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- 25. The apparatus of Claim 24 wherein the satellite signals are transmitted in a digital format.
- 26. The apparatus of Claim 24 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.
- 27. The apparatus of Claim 24 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to each user location in the first terrestrial broadcast service area within a combined satellite signal transmission range about each respective user location, and wherein:
- (a) the terrestrial transmitter broadcasts only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range at each respective user location.

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Russell D. Culbertson

The Culbertson Group, P.C.

1114 Lost Creek Boulevard, Suite 420, Austin, Texas 78746

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: May 10, 2005

INVENTOR(S)

Carmen Tawil and Saleem Tawil

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- 28. The apparatus of Claim 27 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising:
- (a) a plurality of additional terrestrial transmitters, each broadcasting signals at the first frequency from a different terrestrial broadcasting location to a portion of the combined terrestrial broadcast service area, each additional terrestrial transmitter being located with respect to each respective user location in the respective portion of the combined terrestrial broadcast service area to which the respective additional transmitter broadcasts such that the respective additional terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- 29. A method for simultaneously broadcasting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, where the satellite is transmitting at a first frequency along a satellite transmission axis extending from the satellite to a number of terrestrial user locations within a first terrestrial broadcast service area, the method comprising the steps of:
- (a) broadcasting terrestrial signals at the first frequency from a terrestrial transmitter to the first terrestrial broadcast service area, the terrestrial transmitter being located with respect to each respective user location so as to broadcast to the respective user location along a transmission route which is outside of a satellite directional reception range about the respective user location, wherein the satellite directional reception range comprises a limited directional range encompassing the satellite transmission axis.
- 30. The method of Claim 29 wherein the satellite signals are transmitted in a digital format.
- 31. The method of Claim 29 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.

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Russell D. Culbertson

The Culbertson Group, P.C.

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- 32. The method of Claim 29 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising the step of:
- (a) broadcasting terrestrial signals at the first frequency to the combined terrestrial broadcast service area from a plurality of additional terrestrial transmitters at different terrestrial locations, each additional terrestrial transmitter broadcasting to a respective portion of the combined terrestrial broadcast service area and being located with respect to each respective user location in that respective portion of the combined terrestrial broadcast service area so as to broadcast to the respective user location along a transmission route which is outside of the satellite directional reception range about the respective user location.
- 33. An apparatus for simultaneously broadcasting terrestrial signals on a common frequency with satellite signals transmitted from a satellite, the satellite transmitting satellite signals at a first frequency to a number of user locations in a first terrestrial broadcast service area for reception within a satellite directional reception range about each respective user location, the apparatus comprising:
- (a) a terrestrial transmitter for broadcasting terrestrial signals to the first terrestrial broadcast service area at the first frequency from a fixed terrestrial location which forms a fixed geometry with each respective user location and the satellite, the terrestrial transmitter being located with respect to each respective user location such that the terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.
- 34. The apparatus of Claim 33 wherein the satellite signals are transmitted in a digital format.
- 35. The apparatus of Claim 33 wherein the route along which the terrestrial transmitter broadcasts to each respective user location is at a terrestrial reception elevation with respect to the respective user location which is above or below the elevation of each direction within the satellite directional reception range about the respective user location.

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Russell D. Culbertson

The Culbertson Group, P.C.

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- 36. The apparatus of Claim 33 wherein satellite signals are transmitted from a plurality of satellites in geosynchronous orbit, each satellite separated from each other satellite in a geosynchronous arc by an angle greater than one half of the satellite directional reception range and the satellites together transmit satellite signals to each respective user location within a combined satellite signal transmission range about the respective user location, and wherein:
- (a) the terrestrial transmitter broadcasts only in directions which are outside of the combined satellite signal transmission range and an angle equal to one half of the satellite directional reception range outside of the boundaries of the combined satellite signal transmission range at the respective user location.
- 37. The apparatus of Claim 36 wherein the satellite is transmitting at the first frequency along a number of additional satellite transmission axes each extending from the satellite to one of a number of additional terrestrial user locations within a combined terrestrial broadcast service area which includes the first terrestrial broadcast service area, and further comprising:
- (a) a plurality of additional terrestrial transmitters, each broadcasting to a portion of the combined terrestrial broadcast service area from a different fixed terrestrial transmission location which forms a fixed geometry with the satellite and each respective user location in the respective portion of the combined terrestrial broadcast service area, each additional terrestrial transmitter being located with respect to each respective user location to which the respective additional terrestrial transmitter broadcasts such that the respective additional terrestrial transmitter broadcasts to the respective user location along a route which is outside of the satellite directional reception range about the respective user location.

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Russell D. Culbertson The Culbertson Group, P.C.

1114 Lost Creek Boulevard, Suite 420, Austin, Texas 78746